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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,988	11/16/2000	Tomo Ueno	SUGI:093	3887

7590

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EXAMINER

CHEN, BRET P

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 12/05/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/646,988

Applicant(s)

Tomo Ueno

Examiner

Bret Chen

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6 20) ☐ Other:

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DETAILED ACTION

Claims 1-11 are pending in this application.

Specification

1. The abstract of the disclosure is objected to because of confusing language. Correction is required. See MPEP § 608.01(b).

In the last sentence, the phrase "lowering of the film-forming process" is confusing. It is not clear what is being lowered.

Claim Rejections - 35 USC § 112

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the language is confusing. Appropriate amendments are requested.

In claim 1, the terms "the plasma", "the mixed gas", "the gas", "the gaseous molecules", "the inert gaseous molecules", "the excited inert gaseous molecules", "the ones", "the elements" lack antecedent basis.

In claim 1 line 4, the term "excited inert gaseous molecules" is vague and confusing as to how an inert gas can be excited. By definition, an inert gas does not react. Clarification is requested.

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In claim 1 line 5, the term "quasi-stable" is a relative term which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 1 line 6, the term "atomicity elements" is vague and confusing. It is not clear what "atomicity" adds to said term. Clarification is requested. The same issue applies to claim 6, 8-10.

In claim 4 line 2, the term "the inert gaseous" lacks antecedent basis and/or is confusing as to what said term means.

In claim 5 line 3, the term "the constituting elements" lacks antecedent basis and/or is confusing as to what said term means.

In claim 6 line 3, the term "the silicon elements" lacks antecedent basis and/or is confusing as to what said term means. Silicon is an element.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 702898 or Hudgens et al. (4,737,379). JP '898 discloses a method of forming an oxide film by using a mixed gas including an inert gas and an oxygen gas in a plasma (purpose). A silicon wafer is utilized (constitution). Hudgens discloses a method of forming hard, adherent films by plasma deposition of a gaseous mixture containing a multielement gaseous compound (col.8 lines 23-41). The gases can be nitrogen (col.8 line 64) and an inert gas (col.11 lines 61-64). However, the references fail to specifically teach a quasi-stable level gaseous molecules.

It is noted that the references clearly teach of using a plasma to deposit thin films. One skilled in the art would realize that a plasma excites the gaseous mixture which allows lower processing temperatures. The mixture contains molecules would are not stable. One skilled in the art would know that quasi stable produces higher deposition rates but increase the thermal budget of the substrate. It would have been obvious to utilize a quasi-stable level gaseous molecules to obtain the known advantages as indicated above.

The limitations of 2-11 have been addressed above.

Qian et al. (5,571,576), Doehler et al. (4,883,686), and Khan et al. (6,015,759) have been provided for additional information.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (703) 308-3809. The examiner can normally be reached on Monday through Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached on (703) 308-2333. The fax phone number for this Group is (703) 872-9310. Amendment After Finals should be faxed to (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

bc

November 29, 2001



BRET CHEN
PRIMARY EXAMINER